



PRESENTATION OF THE ALLIANCE FOR NUCLEAR RESPONSIBILITY
AS PART OF THE CALIFORNIA ENERGY COMMISSION
INTEGRATED ENERGY POLICY REPORT

1. What are the trade-offs between interim storage facilities located at either the reactor sites or a centralized location in the West?
 - A. The problems include but are not limited to:
 - 1) Thousands of tons of high-level radioactive waste stored precariously on earthquake active coastal zones;
 - 2) Overcrowded radioactive fuel pools, scheduled to remain at capacity through the life of California's nuclear plants;
 - 3) "Temporary" storage casks with 20 year licenses which may remain onsite in perpetuity;
 - 4) Prolonged vulnerability to terrorist attack resulting in a radioactive release on California's coast;
 - 5) Creation of a false sense of security, of having taken care of problem now, but this will likely become a much larger and more expensive problem later;
 - 6) According to an Stephens Washington Bureau: "Only months before the department has said it may apply for a license to build a Yucca Mountain complex, the engineers concluded DOE had not fully evaluated the hazards associated with handling damaged fuel at the site, nor designed processes for managing it effectively."¹
 - 7) Transfer, train and truck accidents while transporting high-level radioactive waste from California to a "centralized location in the West".

For over three decades there has no safe scenario for the country's high-level radioactive waste. The only scenario that decreases economic and reliability risks is to cease the production of high-level radioactive waste stored on California's coast. Therefore, the Alliance for Nuclear Responsibility recommends that the production of high-level radioactive waste should be limited to current operating license terms for Diablo Canyon and SONGS.

2. What are the implications of maintaining on-site storage of spent fuel at the individual reactor sites for at least the operating period of the reactor?
 - 1) Cost of onsite storage;
 - 2) Destruction of coastal zone;
 - 3) Earthquake vulnerability;
 - 4) Additional risk from terrorism, acts of malice and insanity;

¹ Stephens Washington Bureau, Copyright 2005 by Steve Tetreault

- 5) Necessitates changing current policy and requiring full emergency planning and security at decommissioned sites until all waste is removed;
- 6) Risks from accidents, earthquakes, terrorism, acts of malice or insanity each time the highly radioactive fuel rods are being transferred from pools to casks, a process that will be repeated many times under current license;
- 7) Overcrowded radioactive fuel pools, which according to the National Academy of Sciences could result in "under some conditions, a terrorist attack that partially or completely drained a spent fuel pool could lead to a propagating zirconium cladding fire and the release of large quantities of radioactive materials." (NAS 2005)

The 2005 National Academy Report authorized by Congress recommended that radioactive fuel pools be kept at the configuration of the original licenses. Neither PG&E nor SCE intend to follow this recommendation and the NRC does not seem inclined to require this safety and security procedure. While the state cannot force PG&E or SCE to adhere to the NAS safety recommendations, California does have the right and the responsibility to protect the state from foreseeable risks to our economy and energy reliability. It does have the right to shutdown these facilities due to increasing economic risks to our state.

3. The U. S. Court of Federal Claims issued an opinion in the case of Sacramento Municipal Utility District vs. the US DOE that determined that DOE's failure to begin disposing of the spent fuel on January 31, 1998, as required by DOE's standard contract with SMUD, was a breach of contract. Does your organization have a position on what are the consequences to California of DOE's failure to dispose of this spent fuel by 1998 as required by DOE's contracts with the utilities?

The Nuclear Waste Policy Act assumed that non-existent science and non-existent technology would solve the problem of the permanent safe disposal of the most deadly substances known to mankind. States across the country relied on the fulfillment of the NWPA. Today the NWPA is not worth the cost of the millions of paper filings printed to force this policy down the throats of Nevadans and 65 reactor communities. California has waited over 25 years as HLRW stockpiles increase on our coast. It is time to say "no more" the risk is too great for too long.

The Alliance for Nuclear Responsibility recommends a portion of DOE funds that California has paid in, should go to partially covering the costs of secured, hardened, dry cask storage on site until permanent solution available - this does not mean stop the search for the "right" permanent solution -but to assure that California is safeguarded here, now.

The Alliance for Nuclear Responsibility's position on the DOE'S failure to fulfill promises on permanent safe storage of high-level radioactive waste should trigger an immediate amendment to PRC 25524. The production of HLRW as a byproduct of nuclear power must cease no later than current operating license terms for Diablo Canyon and SONGS.

4. What is the current status of legal efforts to require the NRC to consider the implications of terrorism in its review of interim fuel storage facilities at the individual reactor sites?

The 9th Circuit Court has scheduled a hearing on the matter for Oct 17th.

5. What are the implications for California of transporting HLRW to either Yucca Mountain or a centralized interim storage facility in the West?

Train accidents –

There were 7,300 train accidents from per year 1990-2001 for a total of 88,000 over a 12 year period. Over 23, 700 trains derailed and 14,700 trains carrying hazardous waste were involved in accidents. 448 of these accidents involved the release of hazardous material. In 2001, the Federal Railroad Administration found 108,000 defects in tracks and signal equipment nationwide.

In California there were 4,264 train accidents from 1990 through 2001, a rate of 355 per year. This includes 1,319 derailments, 233 train collisions, and 2,350 accidents involving a train hitting (or being hit by) a car, truck or person.

Truck accidents

Nationwide, approximately 60,000 tractor-trailer wrecks happen each year on Interstate highways. There will be thousands of nuclear waste truck shipments on Interstates if Congress commits to Yucca Mountain.

About 200,000 tractor-trailer wrecks occur each year on all roads in the United States. In 11,000 of these wrecks the truck rolled over. There were 3,300 roll-overs on Interstates.

In California there were 1,880 fatal tractor-trailer wrecks from 1994 through 2000. 490 of these fatal wrecks occurred on Interstates and 103 involved rollovers.²

Though the CEC 2005 Report fails to mention the barging of high-level radioactive waste, the feasibility of this transport is on the table. "As part of its plan to transport high-level radioactive waste to Yucca Mountain, Nevada, the U.S. Department of Energy (DOE) proposes up to 312 barges carrying giant high-level radioactive waste containers onto the Pacific along the California coastline. Each time a barge is loaded and off-loaded there is risk.

It is important to remember that the Unit 1 reactor destined for the East Coast of the U.S. remains at SONGS. CalTrans, the rail authority, the Panama Canal authority and the port receiving this waste hearing for Barnwell have all expressed strong reservations due to weight, insurance and risk. If SCE cannot get Unit 1 offsite, what are the changes of hundreds of tons of high-level radioactive waste safely and securely leaving our state?

Accidents happen. But what if high-level radioactive waste is involved? The U.S. Nuclear Regulatory Commission (NRC) design criteria for atomic waste transport containers are woefully inadequate. Rather than full-scale physical safety testing, scale model tests and computer simulations are all that is required.

The underwater immersion design criteria are meant to "test" (on paper, at least) the integrity of a slightly damaged container submerged under 3 feet of water for 8 hours. An undamaged cask is "tested" (on computers, at least) for a 1 hour submersion under 656 feet of water. But if a cask were accidentally immersed under water, or sunk by terrorists, is it reasonable for NRC to assume that the cask would only be slightly damaged or not damaged at all? Given that barge casks could weigh well over 100 tons (even up to 140 tons), how can NRC assume that they could be recovered from underwater within 1 hour, or even within 8 hours? Special cranes capable of lifting such heavy loads would have to be located, brought in, and set up...

² Source: EWG Action Fund. Compiled from Department of Transportation Fatal Accident Reporting System (FARS) and General Estimation System (GES).

The dangers of nuclear waste cask submersion underwater are two fold. First, radioactivity could leak from the cask into the water. Given high-level atomic waste's deadliness, and the fact that each container would hold 200 times the long-lasting radioactivity that was released by the Hiroshima atomic bomb, leakage of even a fraction of a cask's contents could spell unprecedented catastrophe for a vast stretch of the California coastline. Second, enough fissile uranium-235 and plutonium is present in high-level atomic waste that water, with its neutron moderating properties, could actually cause a nuclear chain reaction to take place within the cask. Such an inadvertent criticality event in Sept. 1999 at a nuclear fuel factory in Japan led to the deaths of two workers; many hundreds of nearby residents, including children, received radiation doses well above safety standards."³

There are 103 hospitals, approximately 1500 schools within and millions of California homes and businesses within one mile of proposed transport routes.

There has been inadequate planning for the impacts of transporting 77,000 tons of HLRW across our nation. Billions of taxpayer dollars have been poured into a very unstable hole in Nevada. The public has virtually no clue how this lethal material will be safely transported using the degraded infrastructure of the nation's railways and highways.

Thousands of first responders must be trained and equipped; hospitals along the route must have facilities and personnel to deal with a radioactive accident. What are these costs? Who will pay these costs? The costs of high-level radioactive waste transport have never been included in nuclear generation cost, risk and benefit studies.

³ <http://www.nirs.org/factsheets/fctsht.htm>

Barge Shipments of High-Level Radioactive Waste on the California Coast

Proposed by U.S. Dept. of Energy under its Yucca Mountain Plan

Map taken from Figure J-9, Routes analyzed for barge transportation from sites to nearby railheads, page J-80.

Nuclear Plant Location Number of Shipments Proposed Barges offloaded at:

Diablo Canyon 1 Avila Beach Up to 150 Oxnard, Port of Hueneme

Diablo Canyon 2 Avila Beach Up to 162 Oxnard, Port of Hueneme

Totals Up to 312

Table taken from Table J-27, Barge shipments and ports, page J-83.

Map and table taken from U.S. Department of Energy, "Final Environmental Impact Statement for Yucca Mountain," Appendix J ("Transportation"), Feb. 2002.